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Taking on Challenges and Working Together

Introduction and Business Divisions

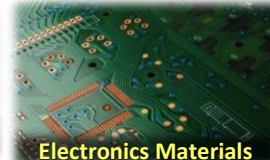
Fujikura Kasei produces polymer materials for a variety of applications, developing unique, value-added products based on our decades of accumulated expertise.



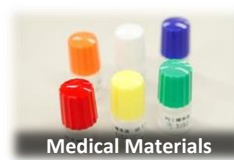
Coatings for Plastics



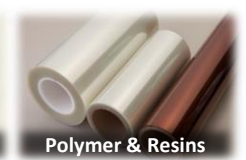
Architectural Coatings



Electronics Materials



Medical Materials



Polymer & Resins

DOTITE Electrically Conductive Pastes

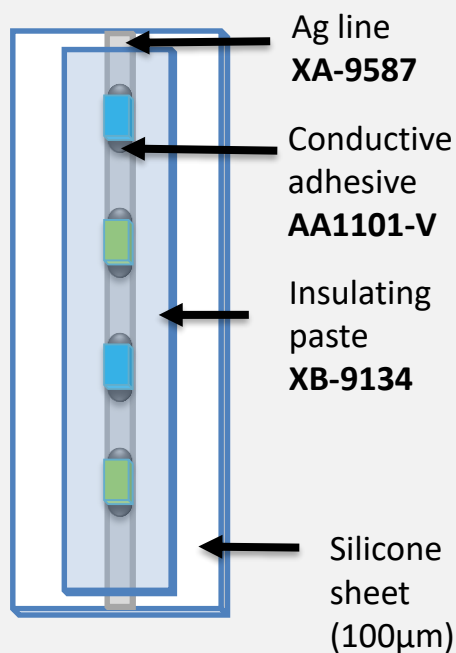
In 1957, we were the first manufacturer in Japan to develop and sell electrically conductive pastes and insulators for electronics under the brand name DOTITE. We have a wide range of inks, adhesives, and EMI shield paints.

This catalogue will introduce some of our latest developments in stretchable and moldable conductive inks.



DOTITE – Stretchable Silicone Pastes

Silicone-based pastes, providing a full stack for printed electronics including conductive ink, conductive adhesive, and insulating overcoat.



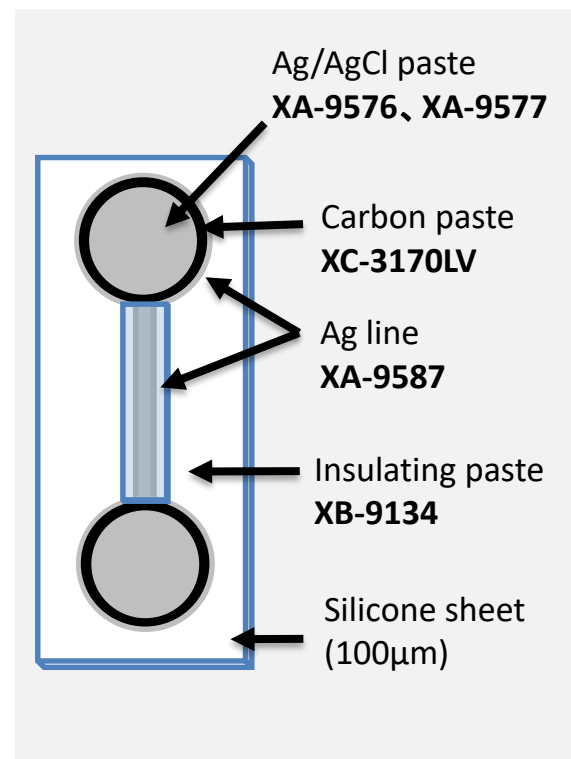
- Silicone ink formulated for use in wearable electronics.
- Low elastic modulus, providing softness and excellent stretchability.

	DOTITE XA-9587	DOTITE XB-9134	DOTITE XC-3170LV	DOTITE AA1101-V
Type	Ag ink for circuitry	Insulating ink	Carbon variation	Adhesive
Resistivity	$2 \times 10^{-4} \Omega \cdot \text{cm}$	-	$1.8 \Omega \cdot \text{cm}$	$5 \times 10^{-4} \Omega \cdot \text{cm}$
Substrate	Silicone sheet	Silicone sheet	Silicone sheet	Silicone sheet
Stretch	100%	100%	100%	-
Curing Conditions	160°C, 60 mins.	150°C, 30 mins.	150°C, 30 mins.	160°C, 60 mins.
Application	Screen printing	Screen printing	Screen printing	Metal mask printing

DOTITE – Ag/AgCl Stretchable Silicone Pastes

Silicone-based Ag/AgCl stretchable ink variations

	DOTITE XA-9576	DOTITE XA-9577
Ag/AgCl Ratio	90/10	70/30
Resistivity	4.3×10^{-4} $\Omega \cdot \text{cm}$	1.2×10^{-3} $\Omega \cdot \text{cm}$
Substrate	Silicone sheet	Silicone sheet
Stretch	100%	100%
Curing Conditions	150°C, 30 mins.	150°C, 30 mins.
Application	Screen printing	Screen printing



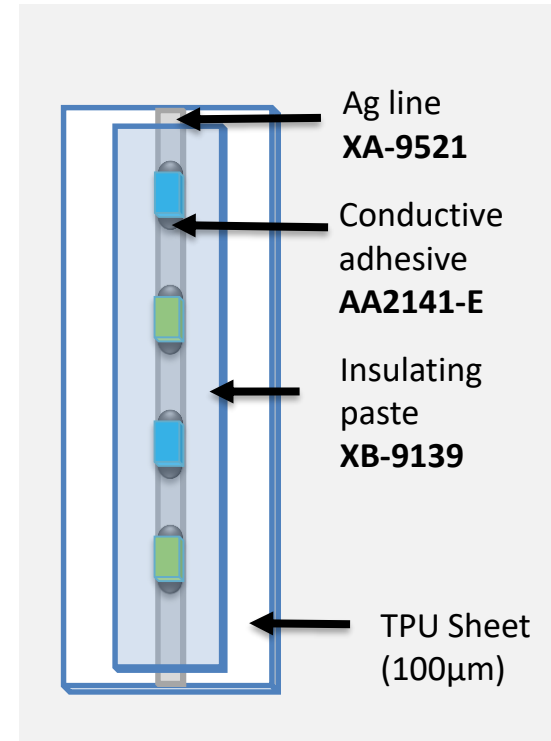
Example of multilayer structure for iontophoresis

- Silicone inks formulated for medical electrodes, iontophoresis, etc.
- Compatible with DOTITE silicone insulators and adhesives (see previous page).

DOTITE – Stretchable Urethane Pastes

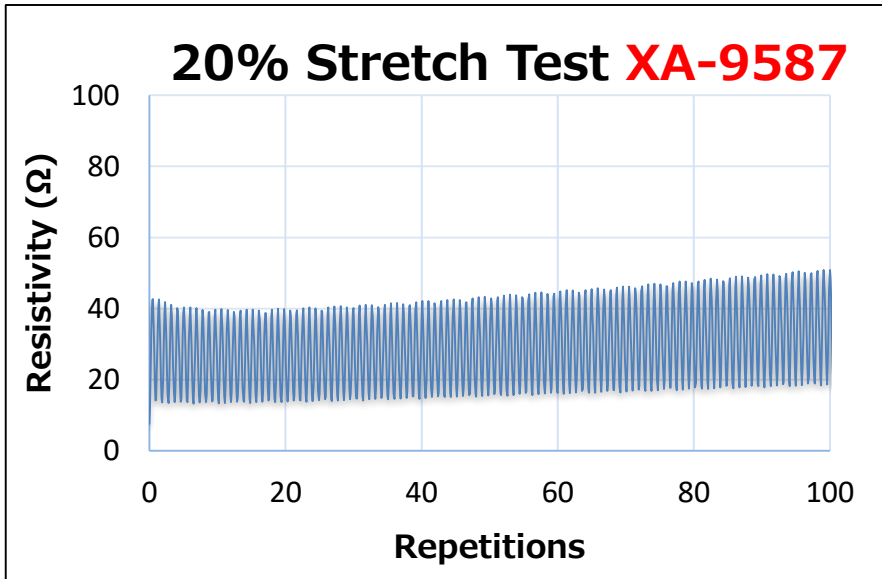
Urethane-based pastes, providing a full stack for printed electronics including conductive ink, conductive adhesive, and insulating overcoat.

	DOTITE XA-9521	DOTITE XB-9139	DOTITE XC-9092	DOTITE AA2141-E
Type	Ag ink for circuitry	Insulating ink	Carbon variation	Adhesive
Resistivity	$4 \times 10^{-4} \Omega \cdot \text{cm}$	-	$4 \times 10^{-1} \Omega \cdot \text{cm}$	$8 \times 10^{-4} \Omega \cdot \text{cm}$
Substrate	TPU	TPU	TPU	TPU, PC
Stretch	100%	100%	50%	-
Curing Conditions	100°C, 60 mins.	100°C, 60 mins.	100°C, 60 mins.	130°C, 5 mins.
Application	Screen printing	Screen printing	Screen printing	Metal mask, dispensing

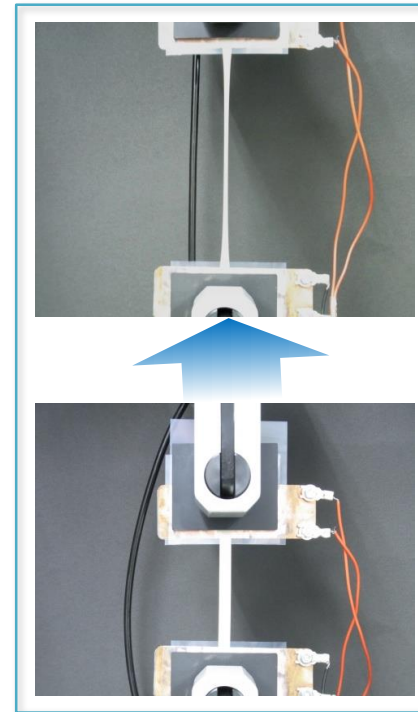
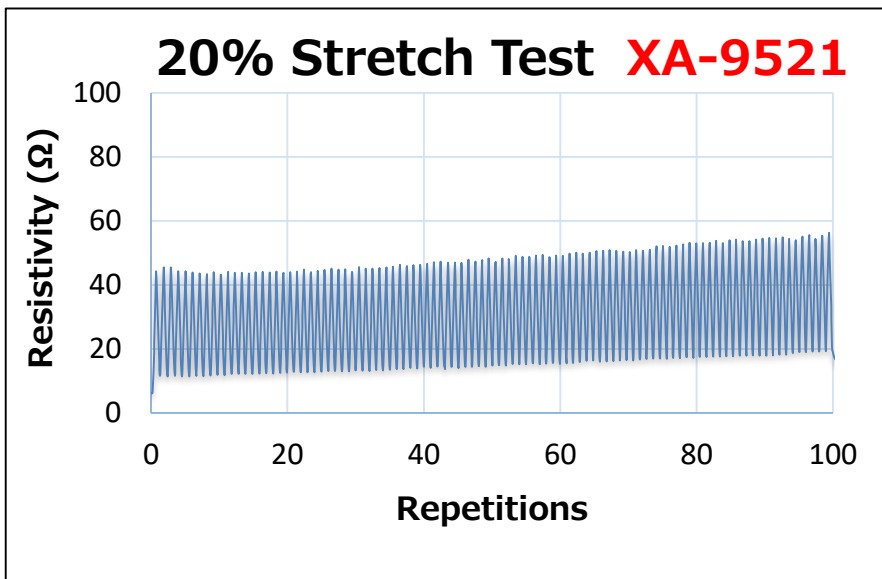


- Urethane ink combines stretchability with improved compatibility with a variety of substrates.
- Good washability for reusable wearable devices.

DOTITE – Stretching Properties

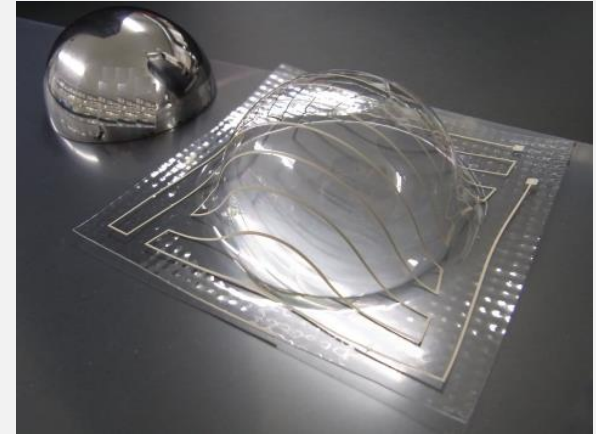


- Maintains stable resistivity even after repeated 20% stretching
- Maintains conductivity even after 100% stretching



DOTITE - Moldable Pastes for IME

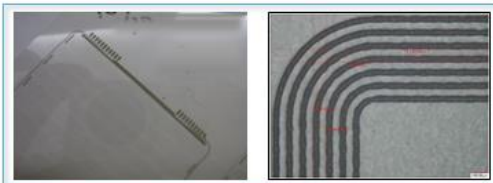
	DOTITE XA-3737	DOTITE XA-3898	DOTITE XB-3361
Type	Ink for circuitry	High conductivity	Insulating ink
Substrate	PC, PET	PC, PET	PC, PET
Resin	Polyester	Polyester	Polyester
Resistivity	$6.0 \times 10^{-5} \Omega \cdot \text{cm}$	$2.2 \times 10^{-5} \Omega \cdot \text{cm}$	-
Expansion	60%	10%	-
Curing Conditions	125°C, 30 mins.	125°C, 30 mins.	120°C, 30 mins.
Application	Screen printing	Screen printing	Screen printing



- IR curing for reduced cure times possible.
- Full stack available - compatible with DOTITE AA2141-E urethane adhesive.

DOTITE - For Conventional Printed Electronics

	DOTITE XA-3512	DOTITE XA-3609	DOTITE FA-353N	DOTITE XA-3513	DOTITE FA-451A	DOTITE XA-9565
Type	Fine line printing	Very fine line printing	Flexible	Ag/AgCl	High conductivity	Very high conductivity
Substrate	PET, glass, ITO	PET, glass	PET	PET	PET	PET (w/ XB-3315 undercoat)
Resin	Polyester	Phenol	Polyester	Polyester	Polyester	None
Resistivity	5.9×10^{-5} $\Omega \cdot \text{cm}$	3.0×10^{-5} $\Omega \cdot \text{cm}$	2.9×10^{-5} $\Omega \cdot \text{cm}$	1×10^{-4} $\Omega \cdot \text{cm}$	1.7×10^{-5} $\Omega \cdot \text{cm}$	9.1×10^{-6} $\Omega \cdot \text{cm}$
Curing Conditions	140°C, 20 mins.	130°C, 30 mins.	150°C, 30 mins.	150°C, 30 mins.	150°C, 30 mins.	130°C, 30 mins.
Application	Screen printing	Gravure offset printing	Screen printing	Screen printing	Screen printing	Screen printing



- Electrically conductive adhesives and insulating pastes are also available.



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